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EXAMINER

FEGGINS, KRISTAL J

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 05/21/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,029

Applicant(s)

WOOD ET AL.

Examiner

K. Feggins

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-11, 13-16, 18-21 and 25 is/are rejected.
- 7) ☒ Claim(s) 6-8, 12, 17, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 10 recites the limitation " the known translation distance" in line 2. There is insufficient antecedent basis for this limitation in the claim.
2. Claims 20-22 are objected to because of the following informalities: There is not a blank line between claims 21 & 22. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-2, 4-5, 9, 13-16 & 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Hevenor et al. (US 6,138,885).

Hevenor et al. disclose the following claimed limitations:

- * regarding claim 1, a method of aligning a sheet material disposed upon a worksurface for enhancing printing or other operations on the sheet material (Abstract),
- * placing the sheet material over the worksurface (col 7, lines 35-40, figs 1-3);
- * determining the alignment of the sheet material in a coordinate system having first and second axes for specifying locations relative to the worksurface and the sheet material overlaying the worksurface (col 3, lines 23-33, col 4, lines 47-64, col 5, lines 35-59, figs 1, 2, & 6);

* differentially driving spaced portions/alignment/ of the sheet material for moving the sheet material for providing a selected alignment of the sheet material (col, 5, lines 35-59, col 8, line 50-col 9, line 58, figs 1-3, 5a-d & 6).

* regarding claim 2, wherein the step of placing the sheet material over the worksurface includes the step of placing the sheet material over a flat worksurface (figs 1 & 2).

* regarding claim 4, wherein the step of determining the alignment of the sheet material includes determining the skew of the printing sheet, and wherein the step of differentially driving spaced portions for providing a selected alignment includes differentially driving for providing a selected skew of the printing sheet (col 6, ln 49-col 7, ln 2, col 8, lns 6-49)

* regarding claim 5, wherein the step of determining the alignment of the sheet material includes determining the distance of a selected location on an edge of the sheet material from a selected location in the coordinate system, and wherein the step of differentially driving spaced portions of the sheet material for moving the sheet material for providing a selected alignment includes differentially driving spaced portions that the selected location on the edge of the sheet material is within a selected distance of the selected in the coordinate system (col 2, lns 61-65, col 3, lns 1-3, 23-34, col 7, lns 35-65, col 8, lns 28-49, col 9, lns 16-66, col 10, lns 11-17)

* 9 wherein the step of differentially driving spaced portions of the sheet material includes providing a pair of spaced frictional drive wheels/roller/ for frictionally translating the sheet material relative to the worksurface (col 5, lines 18-59) contacting the sheet material with the pair of wheels/roller/ (figs 1 & 2, item 50)

* differentially rotating the drive wheels/roller/ (col 5, lns 18-59, col 10, lns 31-40, col 11, lns 36-52, figs 1, 2, & 6)

* regarding claim 13, wherein the step of determining alignment of the sheet material includes providing a sensor mounted with the worksurface/frame mount with worksurface and sensors are mounted on the frame) and including an array of pixels/tool head inherent feature for printing or plotting/ extending in the direction of one of the axes (col 4, lines 49-58, col 7, lns 54-65, figs 1-2, items 90,92, 94, 96 & 100)

* providing a light source for illuminating the sensor (col 7, lns 54-65, figs 1-2, items 90,92, 94,96 & 100);

* sensing a first location in the direction of the one of the axes of the edge of the sheet material/sensing the large hash marks/ with the sensor (col 7, lns 54-65);

* translating the sheet material a known distance along the other of the axes (col 7, lns 54-65);

* sensing a second location in the direction of the one of the axes of the edge of the sheet material/sensing the smaller hash marks/ with the sensor (col 7, lns 54-67, col 8, lines 1-17);

* determining the skew of the sheet material from the difference between the first and second locations of the edge and the known translation distance (col 7, lns 66-col 8, ln 27);

* regarding claim 14, subsequent to the step of differentially driving space portion to provide a selected alignment, the steps of determining the residual skew of the sheet material (col 7, lns 3-35, figs 4a-c);

* translating the sheet material for printing thereon, the step of translating including steering the material so as to maintain the residual skew of the sheet material (col 7, lns 3-35, figs 4a-c)

* regarding claim 15, wherein the step of steering includes repeatedly determining the skew of the sheet material so as monitor the residual skew, and differentially driving the left and right actuators as necessary to maintain the residual skew (col 7, lns 3-35, col 8, lns 18-27, 50-64, figs 4a-c).

* regarding claim 16, an apparatus for supporting a sheet material on a worksurface with a selected alignment and for performing work operations on the sheet material responsive to a controller (col 3, lns 12-22, col 5, lns 14-17, fig 1, item 38);

* a workbed providing the worksurface for supporting the sheet material, the worksurface containing a workhead axis and a sheet material translation axis perpendicular to the workhead axis (col 4, lns 49-56, col 5, lns 1-2, fig 1);

* a workhead/tool head, for performing the work operation upon the sheet material, said workhead/tool head/ being translatable parallel to the work axis for printing on the sheet material (col 4, lns 49-56, col 5, lns 1-2, fig 1);

* means for securing the sheet material to the worksurface when working of the sheet material/working position/ and for releasing the sheet material from the worksurface/non-working position/ when translating the sheet material (col 5, lines 28-39);

* sensing means for sensing an edge of the sheet material (col 7, lines 54-65, figs 2-3);

* sheet material translation means for translating the sheet material in the direction of the sheet material translation axis, said sheet material translation means including means for differentially/incrementally/ driving space portions of the sheet material, responsive to said sensing means, for providing a selected alignment of the sheet material relative to the worksurface (col 5, lines 40-46, col 7, line 54-65, col 8, lines 18-58).

* regarding claim 18, wherein said sheet material translation means includes first and second friction wheels spaced apart from one another along the direction of the work axis and disposed for contacting the sheet material, and wherein said means for differentially driving includes first and second actuators coupled to the first and second friction wheels (col 5, lines 18-46, fig 2).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Koiwa (JP 63112186 A).

Koiwa disclose the following claimed limitations:

* an edge detection system for providing signals to a controller for detecting the edge of a sheet material in a printer that includes a worksurface for supporting the sheet material, drive means for translating the sheet material along a sheet material translation axis and a workhead translatable along a work axis perpendicular to the sheet material translation axis (fig 1, see Abstract, and Constitution)

* the edge detection system comprising a first sensor/paper sensor, 107/ mounted for translation in the direction of the work axis along with the workhead/printing head, 108/ and facing the worksurface for detecting light traveling in a direction upward from the worksurface toward the sensor (fig 1, see Abstract, and Constitution)

* a second sensor/reference sensor, 110/ for providing signals responsive to the position of the first sensor in the direction of the work axis (fig 1, see Abstract, and Constitution)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hevenor et al. (6,138,885) in view of Hevenor (5,875,949).

Hevenor et al. disclose the following claimed limitations:

* regarding claim 3, wherein the step of placing the sheet material over the worksurface includes placing the sheet material over a cylindrical worksurface

Hevenor (5875949) disclose the following claimed limitation:

* regarding claim 3, wherein the step of placing the sheet material over the worksurface includes placing the sheet material over a cylindrical worksurface (col 2, lines 55-65).

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize the step of placing the sheet material over the worksurface includes placing the sheet material over a cylindrical worksurface, taught by Hevenor et al. ('949) into Hevenor et al. for the purpose of preventing sheet kinking and backup as the sheet is advanced out of processing.

9. Claims 10, 19-21 & 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hevenor et al. (6,138,885) in view of Koiwa (JP 63112186).

Hevenor et al. disclose the following claimed limitations:

* regarding claim 10, wherein the step of determining the alignment of the sheet material includes providing a sensor along one of the axes (col 7, lns 54-65, figs 1-2, items 90,92, 94 & 100)

* a sensor sensing the edge of the sheet material and sensing a first location of the edge (col 7, lns 54-65);

* translating the sheet material a known distance along the other of the axes (col 7, lns 54-65);

* a sensor sensing the edge of the sheet material and sensing a second location of the edge of the sheet (col 7, lns 54-65);

* determining the skew of the sheet material from the difference between the first and second locations of the edge and the known translation distance (col 7, lns 66-col 8, ln 27).

* regarding claim 20, an apparatus for supporting a sheet material on a worksurface with a selected alignment for performing work operations on the sheet material (col 3, lns 12-22, col 5, lns 14-17, fig 1, item 38);

* a workbed for providing the worksurface for supporting the sheet material, said worksurface containing a work axis and sheet material translation axis perpendicular to the work axis (col 4, lns 49-56, col 5, lns 1-2, fig 1);

* sheet material translation means for translating the sheet material in the direction of the sheet material translation axis (col 4, lines 47-57, col 4, 18-39, figs 1-2);

* a workhead for performing the work operations upon the sheet material,

the workhead/tool head/ being translatable parallel to the work axis (col 4, lines 47-57, fig 1);

* means for securing the sheet material to the worksurface when printing on the sheet material and releasing the sheet material from the worksurface when translating the sheet material (col 5, lines 28-39);

* an edge sensor for sensing an edge of the sheet material (col 7, lines 54-65, figs 2-3);

* a controller in communication with said workhead (col 3, lines 5-22), said sheet material translation means and said edge sensor for controlling the work operation on the sheet material responsive to data stored in a memory/inherent feature for stored data (col 5, lines 14-17), and wherein said controller includes programming, stored in a memory associated therewith, for determining the alignment of the sheet material, said programming including instructions for the following: translating the workhead in the direction of the work axis (col 3, lines 5-22) and past the edge of the sheet/the tool head is moved on the guide rail which extends beyond the worksurface, see fig 1/

* receiving a first communication from the edge sensor responsive to the location of the edge of the sheet material in the direction of the work axis/ sensing the large hash marks/ (col 7, lns 54-65);

* energizing the sheet material translation means for translating the sheet material a known distance in the direction of the sheet material translation axis (col 7, lns 54-65);

* translating the workhead in the direction of the work axis and past the edge of the sheet/the tool head is moved on the guide rail which extends beyond the worksurface, see fig 1/ (col 1, lines 47-59);

* receiving a second communication from the edge sensor responsive to the location of the edge of the sheet material in the direction of the work axis/sensing the smaller hash marks/; (col 7, lns 54-65);

* determining the skew of the sheet material responsive to said first and second communications and said known translation distance (col 7, line 54-col 8, line 27, col 8, lines 28-49).

* regarding claim 21, wherein said sheet material translation means includes first and second independent actuators in communication with said controller, and wherein said controller, responsive to the determination of the skew, controls said first and second actuators so as to provide a selected skew of the sheet material (col 5, lines 18-47, col 7, line 54-col 8, line 27, col 8, lines 28-49).

* regarding claim 24, wherein said sheet material translation means includes first and second friction wheels spaced apart from one another along the direction of the work axis and disposed for contacting the sheet material, and wherein said first and second actuators are coupled to the first and second friction wheels for rotating said first and second friction wheels, respectively.(col 5,lines 18-39, fig 2)

Hevenor et al. do not disclose the following claimed limitations:

- * a sensor translatable along one of the axes or a sensor translatable for the
- * wherein said sensing means includes a sensor mounted with said workhead for translation with said workhead in the direction of the work axis
- * said sensor mounted with the workhead for translation therewith in the direction of the work axis

Koiwa disclose the following claimed limitations:

- * regarding claim 10, a sensor translatable along one of the axes or a sensor translatable (Abstract, Constitution and figs 1 & 2) purpose of controlling a printing-starting position for a printing paper.
- * regarding claim 19, wherein said sensing means includes a sensor mounted with said workhead for translation with said workhead in the direction of the work axis (Abstract, Constitution and figs 1 & 2) purpose of controlling the number of printing positions on the basis of the width of the paper.
- * further regarding claim 20, said sensor mounted with the workhead for translation therewith in the direction of the work axis (Abstract, Constitution and figs 1 & 2) purpose of enhancing operability, by detecting the presence or absence of the printing paper by a sensor.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize a sensor translatable along one of the axes or a sensor translatable; sensing means that includes a sensor mounted with said workhead for translation with said workhead in the direction of the work axis; and a sensor mounted with the workhead for translation therewith in the direction of the work axis, taught by Koiwa into Hevenor et al. for the purposes of controlling a printing-starting position for a printing paper; and controlling the number of printing positions on the basis of the width of the paper and for the purpose of enhancing operability, by detecting the presence or absence of the printing paper by a sensor.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hevenor et al. (6,138,885) in view of Koiwa (JP 63112186) as applied to claims 1 & 10 above, and further in view of Mulay et al. (US 6,398,333 B1).

Hevenor et al. as modified by Koiwa disclose all of the claimed limitations except for the following:

* wherein the step of providing a sensor includes providing an optical sensor for transmitting a beam and receiving light from the reflection of the transmitted beam.

Mulay et al. disclose the following claimed limitations:

* wherein the step of providing a sensor includes providing an optical sensor for transmitting a beam/inherent feature of an LED, transmits a beam of light/ and receiving light from the reflection of the transmitted beam (col 3, lines 59-64) for the purpose of

providing a printer controller that determines, based on the print medium type, an optimal temperature range in which to maintain the print head temperature.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize a step for providing a sensor includes providing an optical sensor for transmitting a beam and receiving light from the reflection of the transmitted beam, taught by Mulay et al. into Hevenor et al. as modified by Koiwa for the purpose of providing a printer controller that determines, based on the print medium type, an optimal temperature range in which to maintain the print head temperature.

Allowable Subject Matter

11. Claims 6-8, 12, 17 & 22-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for indication allowable subject matter of claims 6-8 is the inclusion of the method steps of differentially driving spaced portions of the sheet material includes providing a pair of translatable sheet material clamps each extending from a first end to second end and spanning a dimension of the sheet material for clamping and translating the sheet material relative to the worksurface, the first ends mechanically coupled and the second ends mechanically coupled such that the clamps are substantially fixedly spaced along the direction of translation; and clamping the sheet material with at least one of the clamps; and differentially translating the first and second ends of the clamps. It is this step found in the claims, as it is claimed in the

combination, which has been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

The following is a statement of reasons for the indication of allowable subject matter: The primary reason for indication allowable subject matter of claim 12 is the inclusion of the method steps of providing a reflective material under the sheet material for enhancing the difference in reflected light as the sensor is translated across the edge of the sheet material. It is this step found in the claims, as it is claimed in the combination, which has been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

The primary reason for indication allowable subject matter of claim 17 is the inclusion of the limitations that includes the sheet material translation means which includes a pair of translatable clamps each movable between clamped and unclamped conditions relative to the sheet material supported on the worksurface and extending across the worksurface from a first end to second end and parallel to the work axis for translating the sheet material in the direction of the sheet material translation axis, the first ends being mechanically coupled to one another and the second ends being mechanically coupled to one another such that the clamps are substantially fixedly spaced from one another in, the direction of the sheet material translation axis; and wherein the means for differentially driving spaced portions includes first and second actuators, coupled to the first and second ends, respectively, of the clamp pair, for independently translating the first and second ends of the clamp pair in the direction of the sheet material translation axis. It is these limitations found in the claims, as it is

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claimed in the combination, which has been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

The primary reason for indication allowable subject matter of claim 22 is the inclusion of the limitations that includes a position sensor in communication with the controller and for providing a signal responsive to the position of said sensor in the direction of the work axis, and wherein said controller, responsive to at least one of the first and second communications and to said signal from said position sensor instructs said first and second actuators for varying the location of the edge of the sheet material in the direction of the work axis. It is these limitations found in the claims, as it is claimed in the combination, which has been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

The primary reason for indication allowable subject matter of claim 22 is the inclusion of the limitations that includes a sheet material translation means includes a pair of translatable clamps each movable between clamped and unclamped conditions relative to the sheet material supported on said worksurface and extending from a first end to second end across the worksurface and parallel to the work axis for translating the sheet material in the direction of the sheet material translation axis, the first ends being mechanically coupled to one another and the second ends being mechanically coupled to one another such that the clamps are substantially fixedly spaced from one another in the direction of the sheet material translation axis; and wherein said first and second actuators, are coupled to the first and second ends, respectively, of said clamp pair. It is these limitations found in the claims, as it is claimed in the combination,

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which has been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Quinn Jr. et al. (US 4,272,204) disclose the a automatic margin determining apparatus for a scanned sheet of paper. Dusterhus et al. (US 5,547,299) disclose a device for hte exact positioning of a printing head in relation to a recording substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 703-306-4548. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, B. Fuller can be reached on 703-308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-872-9318 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

K. Feggins
K. Feggins
May 16, 2003